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2 Claims:

3 1 The use of a composition of PKB, its analogues,  
4 isoforms, inhibitors, activators and/or the functional  
5 equivalents thereof, to regulate glycogen metabolism  
6 and/or protein synthesis.

7

8 2 The use of a composition of PKB, its analogues,  
9 isoforms, inhibitors, activators and/or the functional  
10 equivalents thereof, for the manufacture of a  
11 medicament to regulate glycogen metabolism and/or  
12 protein synthesis.

13

14 3 The use as claimed in claim 1 or claim 2, to  
15 combat disease states where glycogen metabolism and/or  
16 protein synthesis exhibits abnormality.

17

18 4 The use as claimed in claim 1, 2 or 3, to combat  
19 diabetes.

20

21 5 The use as claimed in any preceding claim, to  
22 combat cancer.

23

24 6 The use as claimed in claim 5, wherein the cancer  
25 is breast, pancreatic or ovarian cancer.

26

27 7 The use as claimed in any preceding claim, wherein  
28 the PKB is PKB $\alpha$ ,  $\beta$  or  $\gamma$ , an analogue, isoform,  
29 inhibitor, activator or a functional equivalent  
30 thereof.

31

32 8 The use as claimed in any preceding claim, wherein  
33 the PKB, its analogue, isoform, or functional  
34 equivalent is modified at one or both of amino acids  
35 308 and 473 by phosphorylation and/or mutation.

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1 9 A composition of PKB, its analogues, isoforms,  
2 inhibitors, activators and/or the functional  
3 equivalents thereof.  
4

5 10 A peptide having or including the amino acid  
6 sequence Arg-Xaa-Arg-Yaa-Zaa-Ser/Thr-Hyd, where Xaa is  
7 any amino acid, Yaa and Zaa are any amino acid, and Hyd  
8 is a large hydrophobic residue, or a functional  
9 equivalent of such a peptide.  
10

11 11 A peptide as claimed in claim 10, wherein Hyd is  
12 Phe or Leu, or a functional equivalent thereof.  
13

14 12 A peptide as claimed in claim 10 or claim 11,  
15 wherein Yaa or Zaa or both are an amino acid other than  
16 glycine.  
17

18 13 A peptide as claimed in claim 10, having the amino  
19 acid sequence GRPRTSSFAEG, or a functional equivalent  
20 thereof.  
21

22 14 A method of identifying agents able to influence  
23 the activity of GSK3, said method comprising:  
24

- 25 a. exposing a test substance to a substrate of GSK3;  
26 and  
27 b. detecting whether said substrate has been  
28 phosphorylated.  
29

30 15 A method of identifying agents which influence the  
31 activity of PKB, comprising:  
32

- 33 a. exposing a test substance to a sample containing  
34 PKB, to form a mixture;  
35 b. exposing said mixture to a peptide as claimed in  
36 claim 10, 11, 12 or 13; and

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1 c. detecting whether (and, optionally, to what  
2 extent) said peptide has been phosphorylated.

3

4 16 A method as claimed in claim 14 or 15, wherein the  
5 extent of phosphorylation of the peptide is determined.

6

7 17 A method as claimed in claim 15, wherein the  
8 phosphorylation state(s) of one or both of amino acids  
9 308 and 473 on PKB is determined.

10

11 18 A method as claimed in any one of claims 14 to 17,  
12 wherein the test substance is an analogue, isoform,  
13 inhibitor, or activator of PKB.

14

15 19 A method as claimed in any one of claims 14 to 18,  
16 wherein steps a or b (or both) are carried out in the  
17 presence of divalent cations and ATP.

18

19 20 A method of treatment of the human or non-human  
20 animal body, said method comprising administering PKB,  
21 its analogues, inhibitors, stimulators or functional  
22 equivalents thereof to said body.

23

24 21 A method as claimed in claim 20, to combat disease  
25 states where glycogen metabolism and/or protein  
26 synthesis exhibits abnormality.

27

28 22 A method as claimed in claim 20 or 21, to combat  
29 diabetes.

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31 23 A method as claimed in claim 20 or 22, to combat  
32 cancer.

33

34 24 A method as claimed in claim 23, wherein the  
35 cancer is breast, pancreatic or ovarian cancer.

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- Pub. at 1 25 A method as claimed in any one of claims 20 to 24,  
2 wherein the PKB is PKB $\alpha$ ,  $\beta$  or  $\gamma$ , an analogue, isoform,  
3 inhibitor, activator or a functional equivalent  
4 thereof.  
5
- 6 26 An agent capable of influencing the activity of  
7 PKB, its isoforms, analogues and/or functional  
8 equivalents, by modifying amino acids 308 and/or 473 by  
9 phosphorylation or mutation.  
10
- 11 27 A method of determining the ability of a substance  
12 to affect the activity or activation of PKB, the method  
13 comprising exposing the substance to PKB and  
14 phosphatidyl inositol polyphosphate and determining the  
15 interaction between PKB and the phosphatidyl inositol  
16 polyphosphate.  
17
- 18 28 A method of determining the ability of a substance  
19 to combat diabetes, cancer, or any disorder which  
20 involves irregularity of protein synthesis or glycogen  
21 metabolism, the method comprising exposing the  
22 substance to PKB and phosphatidyl inositol  
23 polyphosphate and determining the interaction between  
24 PKB and the phosphatidyl inositol polyphosphate.  
25
- 26 29 A method as claimed in claim 27 or claim 28,  
27 wherein the interaction between PKB and the  
28 phosphatidyl inositol polyphosphate is measured by  
29 assessing the phosphorylation state of PKB.  
30
- 31 30 A method as claimed in claim 29, wherein the  
32 phosphorylation state of PKB at T308 and/or S473 is  
33 assessed.  
34
- 35 31 A method of identifying activators or inhibitors  
36 of GSK3 comprising exposing the substance to be tested

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1 to GSK3 and determining the state of activation of  
2 GSK3.

3

4 32 A method as claimed in claim 31 wherein the state  
5 of activation of GSK3 is determined by assessing its  
6 phosphorylation.

7

8 33 A method of determining the suitability of a test  
9 substance for use in combatting diabetes, cancer, or  
10 any disorder which involves irregularity of protein  
11 synthesis or glycogen metabolism, the method comprising  
12 exposing the substance to be tested to GSK3 and  
13 determining the state of activation of GSK3.

14

15 34 A method for screening for inhibitors or  
16 activators of enzymes that catalyse the phosphorylation  
17 of PKB, the method comprising exposing the substance to  
18 be tested to

19

- one or more enzymes upstream of PKB;

20

- PKB; and (optionally)

21

- nucleoside triphosphate

22

and determining whether (and optionally to what extent)

23

the PKB has been phosphorylated on T308 and/or S473.

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